هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	Strength of Materials
Course Code:	214 MMET
Program:	Mechanical Maintenance Engineering Technology (MMET)
Department:	Mechanical Engineering Technology (MET)
College:	College of Applied Industrial Technology (CAIT)
Institution:	Jazan University
Version:	T-104 - 2022
Last Revision Date:	2023

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A. General Information about the Course

Course Identification								
1. Credit Hours: 2								
2. Course Type:								
a. University		College		Department	☑	Track		Others
b. Required	☑	Elective						
3. Level/year at which this course is offered:			5th Level			2nd Year		
4. Course General Description								
This course covers basic mechanical properties and testing of materials by combining theories with standard tests, as well as various methods of calculating the stresses and strains in structural members, such as beams, columns, and shafts with prediction to the response of the body under loading.								
5. Pre-requirements for this course (if any):			191 PHYS					
6. Co- requirements for this course (if any):			-------					
7. Course Main Objective(s):								
This course offers an introduction to the physical, mechanical properties and this course also provides an elaborative knowledge on the materials response on various loads (Tensile, compressive, shear, Impacts etc.). Torsional force effect on an engineering materials examples shafts are studied.								

1. **Teaching Mode: (Mark all that apply)**

No	Mode of Instruction	Contact Hours	Percentages
1	Traditional classrooms	33	100.0%
2	E-learning	0	0.0%
3	Hybride * Traditional classrooms * E-learning	0	0.0%
4	Distance learning	0	0.0%

2. **Contact Hours (based on the academic semester)**

No	Activity	Contact Hours
1	Lectures	11
2	Laboratory/Studio	22
3	Field	
4	Tutorial	
5	Others (specify)	
	Total	**33**

Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes (CLOs)	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recall Stress- Strain relationship (Hooke's Law). Properties of the material under stress.	K1.2	Structured Lectures Worked Examples	Homework Exams
2.0	**Skills**			
2.1	Describe deformation of the object (axial, torsion, bending) under different types of loading and their relationship.	S1.1	Structured Lectures Worked Examples	Homework Exams
2.2	Calculates stresses developed, sectional area of the beam and factor of safety under various loading condition.	S2.1	Structured Lectures Worked Examples	Report Exams
2.3	Conduct various Experiments to evaluate strength of Material	S3.2	Structured Lectures Worked Examples	Homework Exams
3.0	**Values, autonomy, and responsibility**			
3.1	Participate in Team work, Timely completion of Lab reports	V1.2	Collaborative Learning Questioning	Report Oral

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to the concept of strength of materials, typical physical properties of materials, and beam deflections due to loading	1
2	Definition of hook's law, stress and strain of a bar due to an axial loading, direct shear stress and strain, and Poisson's ratio	2
3	Discussing Stress-Strain curve, describing the mechanical properties by engineering Stress-Strain curve, and the ductile and brittle fracture by tensile test.	3
4	Torsion stress and studying of transmission shafts	2
5	Bending moment and Shear force diagram of various beam with different loading conditions.	3
6	Lab Experiments	22
	Total	**33**

D. Students Assessment Activities

No	Assessment Activities	Assessment Timing (In Week No)	Percentage of Total Assessment Score
1	Assignment 1	Week 4	5%
2	Assignment 2	Week 8	5%
3	Lab. Experiments	Week 10	20%
4	Self Study Report & viva voce	Week 10	10%
5	Formative Assessment	Week 7	20%
6	Final Exam	As Scheduled	40%

* Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1 References and Learning Resources

Essential References	1	Strength Materials by SS Rattan. Tata Mc Graw Hills, New Delhi.
Supportive References	1	Strength of Materials by R.S. Khurmi. S Chand Publishers, NewDelhi.
Electronic Materials	1	
Other Learning Materials	1	Handouts and hardcopies of the course material prepared from the text books.

2 Required Facilities and Equipment

Items	Resources
Facilities (Classrooms, Laboratories, Exhibition rooms, Simulation Room, etc.)	Suitable Classroom Whiteboard Suitable number of chairs
Technology Equipment (Projector, Smart Board, Software)	Smart Board Suitable Software
Other Equipment (Depending on the nature of the specialty)	Samples

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Method
Effectiveness of Teaching	Course Instructor (Faculty)	Direct
	Head of Department	Indirect
Quality of Learning Resources	Student	Indirect
	Head of Department	Indirect
The extent to which CLOs have been achieved	Course Instructor (Faculty)	Indirect
	Quality Auditor	Indirect
Other		

G. Specification Approval Data

Council/Committee	Mechanical Engineering Technology (MET)
Reference Number	
Date	